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Saint Sophia's Mosaics Revealed

The combination of circumstances that is restoring to the world the Byzantine Mosaics at Saint Sophia is most fortuitous. Mosaics that were abruptly concealed when Mohammed II captured Constantinople from the Christian Emperors in 1453 are painstakingly being uncovered by the noted American Byzantinologist, Thomas Whittemore, acting for his Byzantine Institute, with funds bequeathed to and administered by the American Institute of Architects. Warm admiration is due the Turkish Dictator, Mustafa Kemal, for granting the almost unhesitated permission to lay bare these mural treasures in what has been one of the most jealously guarded mosques of the Moslem world.

The founding of this great domical church in the 6th century by the Emperor Justinian as the ranking cathedral of the Eastern Capital of the Roman Empire at a time when oriental concepts of color and richness had begun definitely to pervade East Roman ideas in Engineering and Architecture is too well known to merit detailed discussion. The almost unparalleled admiration that the church has claimed from the Christmas Day it was dedicated in 537 A. D. down to the present rests not alone on the engineering genius everywhere evident in its vital organism or in the merit of its brilliant architectural decoration, but in the inseparable welding together of structure and decoration into so truthful and compact a unity that we recognize in it a functional design of the highest order and artistic excellence.

Yet for nearly five hundred years a vital element in this balance has eluded us—the mosaics that spread over all the curved and vaulted areas in the upper parts of the church. Mr. Whittemore's problem is to remove the plaster, paint, and whitewash from these and so allow the unity of the great design again to emerge. In doing this of course great restraint and care has been necessary. No additions, no completing of mutilated areas with new parts to confound future students, will be tolerated. The existing original mosaics will be uncovered, made secure, but under no circumstances be otherwise interfered with to destroy the "line" of the original artists. The unscientific restoration of mosaics elsewhere in the East and in Italy has resulted in irreparable loss—by the archaeologists carefully making cartoons of the general design, removing the tesserae, cleaning and then replacing them in new beds of lime in somewhat roughly their old position, not realizing that this operation cost them the original "quality of line."

One season of investigation and two of actual operation have already been accomplished, yet years of work lie ahead. The entire narthex has been completed and some work done in the upper galleries inside the church. The results have been gratifying to say the least. All the mosaics in the narthex (with one notable exception) are of the 6th century and so contemporary with the founding of the structure.

This narthex, or inner vestibule, is a splendid apartment 205 feet long, 26 feet wide, and 42 feet in height. It is covered with nine rectangular groin vaults separated from each other by wide soffited arches. Five imposing doorways on the west side give access to it from the outer narthex that opens from the atrium or entrance court. Two doors lead from the north and south porches. On the east or inner side nine freely classic doorways crowned with flat marble entablatures open one from each bay into the body of the church. The center of these is higher and more imposing than the others and served for royal entrance. The walls up to the springing of the vaults are panelled with precious marble slabs richly veined and matched, separated from each other by crisply carved mouldings. Carved panels strategically placed relieve these areas. In place of a cornice is a splendid frieze bearing a foliate design in opus sectile inlay of rhythmic jewel-like character, in white, green, purple, and grey marbles. (This was found beneath the paint applied by the Fassati Brothers in the middle of the 19th century). A projecting marble string course carved with vine and grape fittingly separates the frieze from the mosaics in the curved areas above.

The entire surface of these vaults and the nine lunettes below them on the east side (windows fill the lunettes on the other three faces) now reveal a continuous expanse of mosaics. The recovery of these represents a major part of Mr. Whittemore's labor to date.

Working in his electrically heated and lighted booth atop a specially constructed steel scaffold with swivelled wheels moving on a steel track, he and his staff patiently chiseled minute particles of rock-like paint from individual tessellae or elsewhere slowly lifted layers of rubber-like pigment from off their surface. It is significant that nowhere have solvents been used for fear of attacking the body of the tessellae and so impairing either their strength or changing their color. Where the lime and powdered marble base was weak new plaster was forced in without ever removing existing mosaic. Where parts of panels are lost, a plaster bed is inserted without making any attempted restoration of designs.

It was found that both marble and glass tessellae were used. They varied in dimensions. Gold and silver ones averaged 0.007×0.0068 , while colored tessellae measured 0.009×0.008 . Fifty different colors and tones of colors were found to have been used, which gives some idea of the refinement and subtlety of tonal effects recorded here contrasting strongly with the meager palettes used in many other Byzantine structures.

It must be remembered in viewing the mosaics that their design and execution represent a summation of the best artistic and technical genius of the period. They were produced by artists from the Imperial ateliers that gave

patronage only to the ranking masters of the day.

The vaults in each bay are divided into four triangular compartments by carefully detailed borders of three registers that move along the groin lines to an enriched circular motif in the center generated by the borders moving about jewelled composite crosses of eight arms. (Center Bay). Framing this are four superb medallions, one in each of the triangular compartments defined by a linear ruby border. These designs in luminous colors are based on the eight pointed star that alternately flowers at its tips with bud or organized leafage. The wide soffitted arches have their breadth marked by the three register borders. Within the broad band thus formed circular medallions of star formation alternate with square panels containing foliate quatrefoils. Each of these is contained within subordinate borders. The background or field of the entire composition is a solid expanse of gold mosaic of a peculiarly rich and livid hue.

It is noted that the tessellae are sunk in the lime irregularly so that their minute planes are at slightly different angles and their fractured edges occasionally revealed. Both these expedients were used to break and hold the light to increase the vibration of color.

Of special significance are the acanthus scrolls that line the window soffits. They possess a rhythmic organization, a certain lift or energy that seems, like in 5th century Greek art, to hold the vital principle of design in nature rather than slavish reproduction of her accidental formations. Yet this beautiful draftsmanship is always contrived within the recognized and accepted limitations of the mosaic medium. These passages alone are sufficient to announce that we must reconsider existing estimates of Byzantine drawing, for here we stand in the shadow of untouched masterpieces of 6th century delineation to which work at Ravenna, Rome or Aachen must inevitably be termed provincial.

The eight lunettes to the left and right of the center bay are decorated with great reserve. The gold field is continued here, but the semicircular shape of the lunette is emphasized by a simple band of opaque red tessellae. This spaciously frames in each instance a slender jewelled cross of unusual Byzantine formation that Mr. Whittemore refers to as the "Golgotha type" where the vertical arm is longer than the horizontal and the four ends of each flare slightly to a bar with oval terminations. The effect is one of measure and elegance.

The center lunette over the royal doorway into the church is the only place in the narthex where the human form is shown in mosaic. This is obviously of later date—evidence seems to point conclusively to the 9th century. It seems likely that this replaces an earlier design that was destroyed during the Iconoclastic Revolt.

This last conclusion seems fortified by the somewhat classic sense of anatomical representation in the natural proportions of each of the figures.

There are four main elements in this composition. A bearded god-like, gently patient, Christ sits with the calm of Zeus on an imposing throne of gold studded with gems and deeply cushioned with rich damask. To our left at his feet the pious crowned figure of Emperor Leo VI kneels

before his king with touching humility—not unmixed with dignity. The Christ is twice life size—and the Emperor slightly less. The draperies of each lie in masterly calligraphic folds. To the right and left of the Christ near the crown of the lunette a pair of medallions each contains a female bust. The one on our left a young woman with maphorion wrapped about head and shoulders, has her hands lifted in prayer facing Christ. (Mr. Whittemore reports that the mosaic here is of surprising fineness). Balancing this figure is an angel with rods in the opposite medallion. These two may represent the "Annunciation." Both are subordinated in key and interest and do not detract from the two important figures. Their circular area is defined by three simple concentric bands of mosaic.

The tonal distribution of color over the whole lunette is subtle in the extreme. To meagerly state its areas: the Christ is clothed in silver blue brocade mantle over light gray undergarments; the Emperor has a pale yellow robe falling over a light purple brocaded chiton to white shoes; the figure in the left medallion is in dark blue with gold designs and white under cap; the angel on the right is in silvery blue brocade with light yellow over mantle. The background of the lunette is divided into three unequal horizontal bands. The lowest is a luminous green, the second a vaporous blue, and the third is gold shot with silver, as in the background of the two medallions. Countless details bring in small areas of reds, greens and blues. Colors and values are recalled and held in balance so that unity of effect is accomplished without loss in clarity of mass or line. Mr. Whittemore suggests the three values of the background represent earth, sea and sky. Can the lack of balance due to the Emperor not having a pendant figure, be another evidence of an almost Chinese concept of sovereignty—that the person of the Emperor was also the embodiment of the physical being of all his subjects and he supplicated alone before deity?

One is grateful that such a mosaic has so soon been brought to light by Mr. Whittemore.

Various positive results have already been established—none more important than the new light thrown on the quality of Byzantine craftsmanship, design and color. The chemical constituency of the pigments used is being examined by the Massachusetts Institute of Technology through the kind offices of Dean William Emerson.

The great interest evidenced in Europe and America has met with gracious response from Mr. Whittemore who has generously planned his program of works so that each year a significant area will be revealed, and after that all joined together, so that the Great Christ in the apse, the angels in the pendentives, and other unsuspected masterpieces may in annual sequence be restored to the public.

—James Grote VanDerpool,
Assistant Professor of the History of Architecture,
University of Illinois.

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Editor Monthly Bulletin

ARTHUR WOLTERSDORF, 520 NORTH MICHIGAN AVE., CHICAGO

Committee on Public Information

E. S. HALL, CHAIRMAN, TIRRELL J. FERRENZ, ARTHUR WOLTERSDORF

The explosion by H. Van Buren Magonigle in the November Pencil Points over the condition in which the architectural profession finds itself, has had repercussions by Louis LaBeaume in the Dec.-Jan. I. S. A. Bulletin, by William L. Steele in the December American Architect and by replies appearing in the December and January numbers of Pencil Points. An official confidential report to the membership of the A. I. A. the first week in January makes reply to strictures aimed by Mr. Magonigle at the Institute's conduct. No mention of Magonigle nor his "address to the Romans" is found in the report.

Many are the diagnoses submitted.

Are we not unduly fearful that architecture has left the architect and passed to other hands? With economic recovery, may we not reasonably expect that the competent and efficient architect will automatically assume his rightful place in the sphere of building activities? His rightful place is not that of promoter and financier. The architect must have clients that believe in him as designer and constructor of buildings. The field is restricted to a limited number. Unpromising and unfit candidates should be discouraged unhesitatingly in the beginning, thus turning them to some more fitting pursuit.

After five months of service in securing loans to home owners for repairs and rehabilitation where other money was not available because of lack of collateral or other security, the Federal Housing Authority is now taking up Title II of its Act providing home building owners with individual loans up to \$16,000 on a not to exceed 80% valuation of land and building.

Much good is expected from the operation of FHA loans. Their purpose is the elimination of junior mortgages, amortization in a regular and orderly manner, government insurance on moneys in banks and building associations loaned to home owners where the application is approved

by the authorities of the FHA.

The taxpayer welcomes this plan of relief in that it adds nothing to the already huge national debt.

A well designed and architect-supervised house in a north shore suburb of Chicago, completed and occupied in the fall of 1934, has a fine quality of oak flooring in three or four rooms. The occupants noticed diminutive mounds of powder deposited on the surface which when brushed away exposed holes in the surface of the flooring. The diagnosis proves the *lyctus* powder-post beetle to be the offensive intruder. The infected floors will be removed and before replacement with new material, the strips and underflooring will be creosoted.

Entomologist T. E. Snyder in Farmers' Bulletin No. 1477 of the U. S. Dept. of Agriculture says this beetle causes extensive losses to seasoned sapwood of hardwood lumber, especially ash, hickory and oak. These beetles are distributed widely throughout the world, carried from country to country in the commercial products which they infest.

Inspection in yards and storehouses should occur at least annually with removal for destruction or treatment of all material showing evidence of powder-post attack. Immersion of hardwood lumber in a hot bath of linseed oil or standard coal-tar creosote is recommended. Heart wood in oak is not attacked.

The Journal of Agricultural Research for June 7, 1934 discusses determination of temperatures fatal to the powder-post beetle, *Lyctus Planicollus* Leconte, by steaming infected ash and oak lumber in a kiln.

The American beech may follow the way of the chestnut and succumb to an imported disease, warns Dr. R. Kent Beattie of the U. S. Department of Agriculture.

The new disease, Dr. Beattie states, was introduced from Europe and has already killed off more than a third of the beech trees of Nova Scotia and many in New Brunswick. The fungus that causes it is abetted by an insect working in partnership.

In the United States, the malady has already been found killing trees in Maine, warns Dr. Beattie. The insect, known as the felted beech scale, occurs not only in Maine, but also in New Hampshire and Massachusetts. The disease has not been reported yet from these last two states.

According to Dr. Beattie, control or eradication measures must for the time being wait on further studies.—*Science News Letter*.

The pulse of the planet has grown feverish in the last century. The leisurely ages of the past in which it was possible for cultures to incubate and develop during centuries in comparative isolation are forever gone. All the world's peoples find themselves hurried by science and the machines into a new cosmic climate where problems, hopes, ideas and ideals multiply, in the midst of which traditional culture patterns lose significance and vitality.—*A. Eustace Haydon, U. of C.*

In Chicago, with the cooperation of the Illinois Emergency Relief Commission, in six months 1,441 buildings out of the 6,001 bad buildings found in the two-thirds of the city surveyed, have been eliminated.

Illinois Society January Meeting

Notice of the monthly meeting of the Illinois Society of Architects on January 22 where the proposed new building code was to be discussed by the framers of this document, brought an attendance of 110 men who gave wrapt attention to the presentation by the four speakers. President Jensen condensed the business meeting to the utmost and then called on F. J. Thielbar, chairman of the Commission for Revising the Building Code of Chicago, to take charge of the meeting.

Mr. Thielbar laid the foundation for all the talks. He stated that after studying the building codes of all principal American cities, his commission had come to the conclusion that a new way would have to be blazed. He enumerated new construction types, explained subdivisions, read subtitles. The new code creates a Bureau of Standards and Tests for untried materials and construction proposed. It recognizes seven construction types. To avoid all dispute in the matter of definition, a glossary is included in the code.

Assistant Corporation Counsel A. F. Gorman, assigned by Corporation Counsel Sexton to cooperate with and help this commission, stated that perhaps he had been selected for this work because of his early training in architects' offices before he became a lawyer. He made clear that police power lies in the state and is delegated to municipalities in their incorporation under the Cities and Villages Act. To show the efficacy of state control, he cited Supreme Court findings on building and zoning authorized by local governing bodies.

Benjamin B. Shapiro, chairman of the structural engineering sections of the code, talked at length on this division of the ordinance. There are nine structural sections. Wall thicknesses are reduced, making thicknesses dependent upon compressive requirements in individual cases. This will save the owners money. Welding is fully recognized with proper safeguards and a standard test for welders is included. Silican steel is recognized, though no welding for this material is permitted. It was stated that these structural sections proposed are, in fact, a manual for engineering schools incorporating findings of tests specially made for this purpose at universities and giving resultant tables. One wonders whether a building code should be a textbook.

George W. Hubbard, chairman of the mechanical sections, read a paper bearing on clauses covering ventilation, elevators, air conditioning and sprinkler systems. He commented favorably upon the steady progress made in the requirements and rulings of the Chicago Health Department. He hoped that the new document would clarify and make easier of understanding the requirements incorporating the advance in the art of ventilating and air conditioning.

Mr. Thielbar, in closing the presentation, spoke of the new document's requirements in theater seating, exits, and stairs, in housing and in fire escapes. The commission anticipates that the new document will be passed by the Common Council of the City of Chicago within the next few weeks after approval is reported by the Building and Zoning Committee of that body.

And from Downstate—

Dear Mr. Editor: I have it on supposedly good authority that you are fairly yearning for news from downstate. Such a gesture of recognition from our brothers of the Windy City toward us of the "sticks" (spell it Styx if you like) deserves something or other—well, we'll bite. So I have dusted and oiled up the old machine that once upon a time kept its bearings hot with specification writing. The exigencies of late years have made me a fairly proficient two-finger artist.

But, to the news! on the dearth of which infinite space has nothing. This does not mean that what I am about to release amounts to nothing. Perhaps it is four-dimensional and, well, I never was good at higher mathematics.

Of all the professions I believe the architects are the most optimistic, principally because they do not have to worry about collections. When the lawyers are not fuming about the dear old Constitution, they are complaining that they never worked harder in their lives and yet have to buy their new cars on the installment plan. And the bankers—did we ever see a more sourfaced lot?

The money they have piled up (and can't get any interest on) makes them that way. If the average architect gets a chance to work thirty hours a week on the HABS his smile-wreathed expression will tell you that the millennium is not "just around the corner" but in plain sight.

Prof. (I don't dare to "Loring" him) Provine and his cohorts over at Urbana are still turning out candidates for architectural registration in considerable numbers; and Stanny Hall and his committee are still passing them on for public consumption (if any). If youth still has so much faith in the future of the profession, is it a case of fools as compared to angels? Anyway it helps to appraise the architects as the most optimistic, though the most unfortunate, group in the U. S. A. Shall such faith bear fruit?

Herrick Hammond and his associates Bry Hadley and Corny Macardell are carrying on under the big dome at Springfield and a kindly legislature may hand them something pretty soon.

Miles Colean, Technical Director of the FHA at Washington, and a born and bred Peorian, spent several days here at Christmas time and honored us with a call at the office. Miles said in his quiet way: "— — — — —." But I wasn't interviewing him and I cannot quote him without permission. But he said a lot more than that. (Try the current architectural press for that insatiable curiosity.)

Ernie Stouffer is keeping seaway on what is left of the Supervising Architect's office at Urbana.

Ralph Varney is busy getting the downstate FHA work under way in his quarters at Springfield and if the bankers come across as hoped, the sound of the saw and the ring of the trowel may once again be heard in the land.

Eddie Lundeen of Bloomington has hopes of getting the HABS work started again in the near future. I worked for Eddie last year myself, and perhaps—who knows—I may get a smile again.—Herbert E. Hewitt.

December and January Chapter Meetings

President E. S. Hall, with gavel in hand, called to order the December meeting of the Chicago Chapter, A. I. A., comprising perhaps fifty men, on December 18 at the Architects Club of Chicago. Mr. C. C. Zantzingar of Philadelphia, in Chicago to attend a meeting of a committee on architectural education, was made the star of the evening. As a star Mr. Zantzingar scintillated successfully. The President had him give his definition of an architect. It is that he be designer, so-called, or not, he is the functioning chairman of a committee of aesthetic and scientific expert workers, banded together under his direction to create an architectural whole.

The speaker then launched into a discussion of the profession's present-day troubles. He spoke of the Federal Government's attitude toward the profession, of Executive orders; of the efforts of the Institute to bring order out of chaos and to restore the architect to his rightful position before the Federal Government. He referred to Magonigle's explosion in print but did not grant it over importance. His address was clothed alternately in seriousness, subtle humor and punch.

Professor Roy Charles Jones of the Architectural School, University of Minnesota, and President of the Association of Collegiate Schools of Architecture, spoke for the hoped for results of the new apprentice or mentor system and the evidence in fifty years.

Messrs. Mundie, Pond and Garden spoke in a reminiscent vein of the early days of the Chicago Architectural Sketch Club. Following these came a number of younger speakers.

* * *

The Chicago Chapter's January 8 meeting was field day for the local officials of the FHA before the architects. This division of the Government's plan to put money in circulation was represented by Carroll H. Sudler, District Director; Leo A. Cotter, Chief Underwriter; Percy E. Wagner, Chief Valuator; John O. Merrill, A. I. A., Architectural Supervisor. All breathed enthusiasm and confidence in the plan and since they are all Chicago men, known to many of their hearers, there was little or no restraint.

Mr. Sudler, suave and smiling as always, explained that the Government's plan of recovery was like a square; the first side was the HOLC, the second FERA, the third PWA Housing Division, and, to complete the square, the FHA. Mr. Sudler gloried in the publicity achieved for the FHA plan and brought with him news-

apers where he displayed full page announcements. He reviewed the work under Title I, which furnished money from \$100 to \$2000 per project for repair, which has been going on for about five months. Title II of the FHA was the burden of the evening's song by all the speakers, and Title III was explained to be the provision for the establishment of a National Mortgage Association to handle the loans made by individual banks under Government insurance. Mr. Sudler read a paper to explain features of Title II, an explanation that architects will find more lucidly and concisely presented in the article by Miles L. Coleen appearing in the December "American Architect." To repeat, Title II provides loans for home building with Government insurance of funds in banks up to \$16,000 for individual projects where the loan never exceeds 80% of the value of the land and building. Illinois building permits, Mr. Sudler said, had increased enormously in number and amount in October and November, 1934, largely through the working of FHA.

Mr. Cotter was short, precise, direct, pointing to the slogan adopted for their work "Fitness—Function—Durability."

Mr. Wagner was interesting if not convincing. He reminded his hearers that in the before-the-crash days he, too, had a hand in high pressure real estate and building promotions, but that now all those things were put behind him. He pictured himself as psychologist, statistician, sleuth and prophet. Psychologist in that he knew the exact needs of every family deserving to have a new home with FHA aid; the size of lot for a given house, the placement of the house on the lot so that each room should have its warranted amount of light; statistician in that he knew just how long a given neighborhood for each class of society would live before turning into a slum; the values that this property would maintain at different times of its life; sleuth in that his judgment of people applying for such loans was infallible, for had he not devised questions that were a sure test of all human frailties; and prophet in that Wagner knew just when the depression would be over and when the next boom he was sure of would be here. He urged his hearers to attend the forthcoming banquet of Real Estate Appraisers and Boards even though the price was \$4 per plate. The wisdom flowing from the mouths of the speakers might be worth many times \$4.

Mr. Merrill, an officer of the Chapter, always serious and never smiling, took pains to explain that design and building standards had been laid down that would be followed religiously; that supervision at the building supplementing the architects' was included; that the architect's fee, he judged, would be the regular established fee. Mr. Merrill's exposition explained the procedure of the submission of plans to obtain the approval of at least the architectural examiners.

President Hall, as chairman, then invited discussion from the floor, stating he looked for no grey-haired speakers. It was youth he wanted to have speak. Nevertheless, some grey heads bobbed up as speakers.

Community Planning Conference

On January 17 occurred in the Agriculture Building, University of Illinois, Urbana, the Second Community Planning Conference under the directorship of Rexford Newcomb, Dean of the College of Fine and Applied Arts. At the morning session Professor Schaffer, Head of the Department of Landscape Architecture, presided. The speakers were Frank Lawrence of the St. Louis Chamber of Commerce, Miss Harlean James of the American Civic Association and Harland Bartholomew, Professor of Civic Design.

Mr. Lawrence showed how through lack of citizen interest a \$20,000,000 bond issue for civic improvements in St. Louis was defeated, whereas three years later the same clientele voted a bond issue of \$87,000,000 for the same purpose. Miss James dwelt upon the diminishing rate of population growth in the United States, curbed immigration and the passage of the frontier and pointed out that American prosperity had been based largely upon our increases in population and the manufacture of commodities needed in the era of national expansion. Mr. Bartholomew expressed the conviction that the present city planning act of the State should be altered to conform to the Standard City Planning Enabling Act, prepared some time ago under federal auspices.

At the afternoon session Dean Rexford Newcomb presided. The speakers were B. C. McCurdy, Engineer of St. Clair County, A. C. Gowan, President Tri-County Regional Planning Federation, and Professor Karl B. Lohmann, Department of Landscape Archi-

ecture. Mr. McCurdy discussed the coordination between city, county, regional and state planning agencies; that "the regional planning board be the meeting place for the national and state authorities with the several local planning groups." Mr. Gowan illustrated how, through cooperation between counties on both sides of the Mississippi River, that is between counties in Missouri and Illinois, the larger regional plan for the St. Louis area had been worked out. Professor Lohmann felt that "the realization of community imperfection or inadequacy" was probably the first step but pointed out that an accompanying "appreciation of community possibilities" should presently be felt if plans were to be made.

The Bureau of Community Planning, under the auspices of which the Conference was held, is empowered:

1. To carry on research in the field of community planning.
2. To gather data in this field and make background surveys pertinent to the intelligent planning of Illinois communities.
3. To summarize and bring to the attention of the people of the state the results of such research, surveys and investigations.
4. To offer certain consultation services to Illinois communities which wish to organize or develop local planning agencies or facilities.

Cooking Tung Oil

Thermolization is the name given to a new way of cooking in the varnish, paint and lacquer industry. A certain peculiarity or habit of tung oil is that it must be cooked to cause it to dry to a clear film, like glass, whereas linseed oil does not require cooking; but linseed oil does not have the many desirable points possessed by properly cooked tung oil. The cooking of tung oil is an art known to most varnish chemists but understood by very few, although they can cook tung oil good enough for ordinary varnish by adulterating the oil with two pounds of rosin per gallon of tung oil and then cooking at 575 degrees F. for ten minutes, to obtain the clear film product. However, that two pounds of rosin wrecks the tung oil for use in house paints because any amount of a gum, no matter how small, if put into a paint will eventually cause cracking of the film. It is true that waterproofness can be gained by using a tung oil gum varnish in paint, but the durability is reduced. Therefore the dream of the paint chemists has been to find a way of cooking tung oil to the stage of drying to a clear film without having to add rosin or other harmful adulterants.

Samuel N. Crowen, well-known architect of Chicago, died at his home in Lake Forest on January 16. An active member of both the Illinois Society of Architects and the Chicago Chapter, A. I. A., he was honored with offices in both organizations through many years. He joined the Society in March 1897. He became a member of the American Institute of Architects in 1907. He was treasurer of the I. S. A. from 1910-18 inclusive. In the Chapter he also served as treasurer and held other offices.

Mr. Crowen was born in Germany sixty-three years ago, coming to this country as a boy. In his youth he lived in New York and in Colorado. His training and experience in architecture were obtained in the offices of the late S. S. Beman and other prominent practitioners. In 1894 he entered independent practice under the firm name of Crowen and Richards, which continued to 1897. From 1897 on to perhaps 1925 he practiced as Samuel N. Crowen, and from 1925 to his demise as S. N. Crowen and Associates.

His practice falls into three categories. From 1897 to about 1910 he was conspicuous in apartment house design and construction in the north end of Chicago then known as Sheridan Park. Many of these structures are of interest today since they reflect, particularly in entrance features, the art nouveau then in vogue in France. From 1910 for twenty years his activity lay in the design and construction of industrial buildings. Among plants designed in his office are the A. B. Dick Co., General Electric X-Ray, House of Kuppenheimer, Borg & Beck, Stewart-Warner, the Cuneo Press, and many others. Completed about 1930 were his designs for the Willoughby Tower, Chicago, and the Hodgson Tower in Minneapolis.

Percy T. Johnstone, architect, of Evanston, member of the Illinois Society of Architects since January 1915, died December 3, 1934.

Sinclair M. Seator, architect, of Chicago, member of the Illinois Society of Architects since September 1915, died January 7, 1935.

Fort Chartres in Illinois—Its Restoration

Fort Chartres is located near the Mississippi River, 4 miles from Prairie du Rocher and about 45 miles below St. Louis, in the heart of the fertile bluff-fringed "American Bottom." The first Fort Chartres was begun in 1718 and finished in 1720; it was located west of what is today known as Fort Chartres and was built of wood. The second Fort Chartres, likewise of wood, was erected in 1732 on the site of the original fort. Inspired by the efforts of LaSalle, the French set about to fortify the rich valley of the Mississippi.

Fort Niagara was erected in 1726 to control the approach to the valley from the north, and this fort and the third Fort Chartres (started in 1753 and finished three years later) were the most important and extensive fortresses erected by the French in America.

In 1763 under the Treaty of Paris, England gained Canada and the Mississippi Valley, Spain gave up Florida to regain Cuba and Spain gained New Orleans and Louisiana. On October 10, 1765, the third Fort Chartres was taken by Capt. Sterling with the 42nd Reg. of Scotch Highlanders. The only authentic description we have of Fort Chartres was taken from the Treaty of Paris, which goes into great detail in connection with this interesting bit of French construction.

The Fort originally stood immediately on the river, but the changes in the channel of the Mississippi left it at various periods at different distances from its bank. In 1756 it was half a mile from the water's edge; in 1766 it was about 80 paces. About 1772 the river inundated its banks and formed a channel so near the Fort that one side of it and two of its bastions were thrown down. This circumstance induced the British, then in possession, to abandon it. At the present time the river cannot be seen from the Fort as dense woods separate it from the river bank, now more than a mile distant. How different our history had not the Father of Waters caused the British to fear! Would George Rogers Clark have been able to capture Kaskaskia? Could Clark have taken so formidable a fortification as Chartres? With the British invulnerable at these points, would not the Mississippi Valley today be a part of Canada? An interesting speculation.

Generally, the French forts were built of wood. The stone walls of Fort Chartres were exceptional. Anxiety of King Louis XIV, at last aroused to a proper understanding of the deplorable condition of affairs in his far Western possessions, forced him to a vigorous policy to defend and retain them. He ordered Fort Chartres to be rebuilt with stone and garrisoned with a body of regular troops. For the construction of the Fort he appropriated a million crowns and ordered large quantities of munitions and other supplies to be sent up the Mississippi at once.

In the summer of 1751 Chevalier Makarty, a Major of the Engineer Corps, a rugged soldier of Irish descent, arrived at the Fort from France with a considerable military force, a large number of artisans and laborers, and boats laden with tools, ammunition, arms, provisions and clothing. The Major assumed command of the post and lost no time in beginning the great work he had been sent there to do. In this era of scientific engineering, it is difficult to imagine any reason for locating a defensive work upon such a wretched site as that selected for Fort Chartres. It was situated on sandy alluvial soil but little elevated above the river's level; continually subject to the river's encroachments; a slough between it and the river bank, and a large slough between it and the bluffs and in the midst of pestilential mosquito-infested swamps. Why an engineer of Chevalier Makarty's presumed attainments erected a splendid fortress at immense expense on this site is beyond comprehension, save that he acted in obedience to positive instructions.

His arrival at the post with well equipped and well disciplined soldiers and their sprightly officers, accompanied by a small army of skilled mechanics and laborers and a fleet of keel-boats of stores, produced a great sensation not only at the decayed and nearly deserted post, but all through the settlements in Illinois. Captain M. Bossu, who came up the Mississippi with a company of marines the following spring, 1752, writing from Fort Chartres says, "Lesieur Saussier, an engineer, has made a plan for constructing a new fort here according to the instruction of the Court." (This evidently means in accordance with orders of the army authorities in France. Evidently this Fort had been planned in France, as were all other forts in America, and the details of construction, while being the same in principle, were naturally worked out to meet conditions at the site). Makarty began operations by sending a large force of workmen to work the bluffs of limestone about four miles east, where they built temporary quarters of logs covered with clapboards, there to blast the rock and cut the detached masses to required dimensions.

The buildings at Fort Chartres, with their foundations uncovered at grade and easily made out, were the following: (A) Entrance gate; this was quite a large affair with several platforms and possibly a draw-bridge over a moat. The gate, of course, was connected with the walls which were 16 feet high. (B) Powder Magazine. (C) Commandant's Quarters. (D) Officers' Quarters. (Note: C and D were buildings adjacent to the gate and parallel with the front wall.) (E) Well surmounted by dovecote. (F) Barracks for the men. (G) Barracks for the men. (H) Guard House and Chapel. (I) Stores Building. (Note: The Stores Building is the building now occupied by the Museum and resident).

Besides these there were bakeries, a prison and other minor structures. The buildings surrounded the parade ground on which the men drilled.

Undoubtedly the plan of Fort Chartres was modeled on that of Fort Niagara. Restorations at Fort Niagara have been made. The legislature of the State of Illinois authorized the restoration of Fort Chartres. This reconstruction is now under way by the state under the direction of the State Supervising Architect. We have made a study of the fort at Niagara and our aim is to carry out in a general way a restoration at Fort Chartres modeled on that of Fort Niagara.

One building was erected by the state on the site of Fort Chartres some years ago. Little effort was made at that time to make an authentic restoration, the building being used for the custodian's residence and for a Museum which contains many interesting relics of this period.

The work under way at present is being carefully carried out and as nearly as possible will represent a building of the period in which the original was erected. The building now being restored contains a chapel with quarters for the Priest, the Guard Room, Officers of the Guard Quarters, and a second story from which the cannons could be fired through the dormer windows.

It is to be hoped that the above description of Fort Chartres will serve to stimulate in the minds of Illinois architects sufficient interest in historic monuments in their state to cause them to make a tour of this section of Illinois where the first permanent monuments of the white man were planted. It will give me pleasure to map out for Illinois architects a tour of Fort Chartres and other worthwhile points of historic interest.

—C. Herrick Hammond,
Supervising Architect for the State of Illinois.

Gothic Forms Derive from Persia

Dr. Arthur Upham Pope, Director, American Institute for Persian Art and Archaeology, New York, Scammon Fund lecturer at the Art Institute on January 15, said that last year had seen discoveries of epoch-making importance in Persian art. As early as 1000 B. C. the Persians had learned the art of living together, for complex of buildings discovered near Persepolis shows that an organized community life existed there that early.

More important to students of architectural history are the results of the architectural survey which, Dr. Pope believes, establish beyond a doubt that the origins of French Gothic architecture are to be found in Persia. Ribbed vaulting, the flying buttress and the pointed arch are found in Persia two hundred years before they appear on the Continent.

Dr. Pope's photographs show ribbed vaults in Persia built in 75 A. D.—ribs that penetrated through the roof—clearly structural and not merely ornamental as those who dispute the new evidence claim. The pointed arch was used in the eighth century and it is definitely established that the flying buttress in Persia ante-dates the flying buttress in Europe by two hundred years. That these forms are there is clearly established by Dr. Pope's illuminating photographs.

If this be so, how did these forms get to Europe? The Crusades carried hundreds of thousands of people to the East who brought back architectural forms. A heavy traffic moved between Europe and the East and it is also known that Persian colonists settled in Europe. In French cemeteries of the fifth and sixth centuries, Persian names are found. There were Persian colonies in Scandinavia and a document recently found in Greece tells of Persian colonies here.

Why should architecture be an exception of the influence of the East on Europe? Intelligent and open-minded scholars find that the evidence indicating that Gothic architecture is of Persian derivation is overwhelming.

Housing in Great Britain

The Editor: Architects are inclined to be opportunists rather than economists. They are more interested in securing a job for the present than in interesting themselves actively in steps that, economically speaking, may result in better chances for future practice in their profession. They should be much impressed by conditions in Great Britain in connection with Housing, as these suggest similar conditions in the United States. Some of these conditions to which I refer are clearly set forth by Herbert N. Casson, editor of "Efficiency Magazine," London, in an article in "Nation's Business."

Great Britain is now having a house building boom. It is said that while brickyards are working overtime, they cannot supply the demand and bricks are being imported. Eighty percent of this building is done without governmental assistance of any kind. The houses are being built by private capital and paid for on the installment plan.

The important point in all this is the fact that this has all happened since the British Government wisely decided to let housing alone. Mr. Casson points out that shortly after the war, the government took over the entire control of the matter of housing the masses. It promised to "build a million houses," to abolish the slums, to provide good housing at cheap rentals, etc. But what it actually did accomplish was the complete demoralization of the whole building business. A tremendous shortage of housing eventually resulted from governmental interference and control. Just

about the same kind of thing the United States Government is at present experimenting with!

History repeats itself, but we take no heed. What happened in Great Britain will certainly happen in America unless we wake up. The Federal government, as well as local governments, has well defined functions. These, however, do not include entering into competitive business of any kind. Architects are among those who should combat this practice.

Since Mr. Casson's article was published, the newspapers report a new bill before Parliament which if passed as reported will result in another experiment in socialism by England, but not as objectionable as the present government building program in America. England proposes in this bill to eliminate the worst features of the overcrowding which resulted in part by her now abandoned government building scheme. The proposed law regulates the number of persons who may lawfully occupy a given housing space, compelling either private capital or the local authorities to make lawful provisions for housing the very poor. Where necessary, it is proposed that a portion of the required funds be provided by a combination of local and national subsidies to the builders covering a period of forty years. This will not result in competition by national government in the building business, but rather in assistance and encouragement to private enterprise in a class of building that is not remunerative. The idea seems to have merit.—*Victor A. Matteson*.

Architects for PWA Chicago Housing Projects

Secretary of the Interior Ickes has appointed the following Chicago architects to cooperate in the development of plans for the three PWA Housing Division projects. Locations and boundaries of these three projects were published in the December-January Bulletin. The architects appointed are:

WEST SIDE: John Holabird, coordinator. Major group: Mundie & Jensen, Armstrong, Furst & Tilton, Ernest Grunsfeld, Jr., Philip Maher. Associate group: Ralph Huszagh, Chester Walcott, Fred Hodgdon, John Merrill, Melville Chatten.

SOUTH SIDE: Clark Wright, coordinator. Major group: Nimmons, Carr & Wright, Childs & Smith, Holsman & Holsman, McNally & Quinn, Charles Bohasseck. Associate group: William P. Doerr, Olsen & Urbain, Lawrence Perkins, Shattuck & Layer, Walter T. Bailey.

NORTH SIDE: Robert DeGolyer, coordinator. Major group: Quinn & Christiansen, Tallmadge & Watson, White & Weber, Hubert Burnham, Hugh Garden. Associate group: Edwin H. Clark, Lowenberg & Lowenberg, Mayo & Mayo, Roberts & Roberts.

Originally it was hoped by PWA authorities that limited dividend corporations, with private capital aided by federal money, could cope with the housing problem in industrial centers where family incomes ranged from \$600 to \$1600 a year but the 500 plans submitted and experiences of the few acceptable projects proved otherwise. The PWA then determined to direct and construct projects themselves, entering cities with a program only when specifically and strongly urged. Where local authorities are empowered to take over the project after construction, it is planned to lease or sell it to them. If no public body is available, the project may be leased to a local non-profit corporation. Six limited dividend projects are under construction, one federal housing project will begin construction in Atlanta shortly, while land is being acquired in 23 cases although only 11 have been announced.—*Metropolitan Housing Council News Letter*.

The Story of a Famous Court House

For years Illinoisans have been told of a court house "somewhere downstate" that had been built fifty or more years ago, good to look upon, fireproof in structure, in accommodation far beyond the county's needs. In clubrooms and dining cars narrators would tell about its excessive cost, disappearance of public officials responsible, declaring that it had crippled the community and that farmers left the county because of excessive taxation. But where was this court house? The narrator couldn't tell. Was it a phantom or a wraith before men's minds? In October 1933 application was made to CWA for a loan for the purpose of redecorating Macoupin County Court House at Carlinville, Ill. In October 1934 appeared a booklet "The History of a Famous Court House" by W. B. Brown of Carlinville, Ill. It is the story of the building which to many has been a phantom court house. The following sketch is drawn from Author Brown's narrative.

Macoupin County's first court house, a two story log building 18 by 24 feet, was built in 1830 and cost, according to the record, \$128.66. The second court house for the county was a two story brick building with cupola, 50 by 50 feet in area and cost \$15,000. It was begun in 1838 and finished in 1840. In the late 60's this second court house was deemed inadequate and a new structure was discussed. A movement occurred in 1867 to divide Macoupin County in two, proposing Virden county seat for the north half and Bunker Hill for the south. To checkmate this plan, the powers in control decided to build a big court house at Carlinville. Once the "immense" building was started, it was reasoned, no one would have enough influence to stop it and divide the county. This is the famous court house.

The building was to cost not more than \$175,000 and the commissioners were authorized to borrow not to exceed \$50,000. E. E. Meyers, a Springfield architect, was entrusted with the plan and construction. Of the four public men entrusted by the County with the building of the court house, two—Judge Thaddeus L. Loomis and County Clerk George H. Holliday—were looked to as the responsible officials.

The structure measures 80 by 181 feet and is 69½ feet high from the ground. The exterior shows a basement and two stories below the cornice. The exterior walls are of dressed magnesian limestone and there is a Corinthian portico at one end of the long axis. The structure is crowned by a large cupola (called "dome" by Mr. Brown). Structurally there is nothing combustible in the building. Every door is of iron. Stairways are iron. The ceiling and panelled walls of the great court room (60 by 74 feet), as well as window frames throughout the building are of iron. One chandelier cost \$3,000 and had 56 gas burners. The judge's chair in this court room was of carved walnut and cost \$1,500. Mr. Brown continues at length in describing features of the building and the detailed cost. When officially completed in 1870, the building had cost \$1,380,500 (the purchasing power of the dollar in 1867 was at least three times its power today). The total assessed value of property in Macoupin County was \$7,274,186. The County was hopelessly in debt.

Judge Loomis and County Clerk Holliday reaped the storm. The Judge lived on in Macoupin County and died in Alton in 1910. Holliday, in 1870, took a train out of Carlinville and was never heard of again. A body suspected of being Holliday's was fished out of the water below Niagara Falls and in 1880 a man was arrested in the state of Washington under suspicion of being Holliday. A stranger, suspected, stopped at the St. George Hotel, Carlinville. Mrs. Holliday was brought to look him over. Finally, at Clinton, Missouri, to which place the Holliday family had migrated, a stranger appeared one night who was suspected of being Holliday. But all these clues failed. Holliday had disappeared without a trace.

For forty years the debt hung over Macoupin County like a financial pall. When coupons were presented for payment, it was found that some of the bonds had been duplicated. In 1874 the Board of County Commissioners, summoned to court in the matter of non-payment of court house bonds, appropriated \$18,000 for the use of the chairman in "court house suits." This money was used to pay the fine of absentees who were in contempt of court. Farmers could not sell their land because of excessive taxes to pay court house bonds. In 1878 the voters approved funding the debt at 75c on the dollar at 6% interest for twenty years. Twenty years later

the bonds were again funded. This time the amount was \$720,000 at 4½% interest.

July 20 and 21, 1910, were jubilee days in Carlinville for at this jubilee the last court house bond was to be burned. Gov. Deneen, with other state political dignitaries came to Carlinville in a special train. On the court house grounds a stand had been erected for the speakers and to this stand natural gas had been conducted through newly laid pipes for the official burning of the last bond. Mr. Brown devotes pages to the description of this jubilee, mentioning many names of important men returned on this occasion to Carlinville. The celebrants numbered twenty thousand. Among those on the platform with Gov. Deneen was John M. Woodson, first mayor of Carlinville, the man who gave the oration at the corner stone laying on October 22, 1867. Mr. Woodson had come from St. Louis where he was now a resident.

It is interesting, in the light of the above, to read Mayor Woodson's closing words at the corner stone laying:

"On this ground where we today have placed this corner stone is to rise 'The princely dome, the column and the arch,' and in the beautiful symmetry of the Roman Corinthian style of architecture, an edifice of magnificent proportions, which as a public building, will not be surpassed in any county in the State of Illinois; a structure to be the property of Macoupin County, it will stand here as the watch-tower of a great and rich people, encircled by a county not surpassed in the world."

"Fellow citizens, pause and contemplate her greatness. She stretches from the West to the East twenty-four miles; from the South to the North thirty-six miles; contains an area of eight hundred and sixty-four square miles, and over five hundred and fifty thousand broad acres.

"Where is the man in our county who does not feel a pride this day—burying the partisan, and rising to an appreciation of what we are and what we may be if our resources are properly husbanded and directed? Greece, the mother of oratory, philosophy, poetry and architecture, had not the resources and facilities of this 19th century, but her people were proud of being called Athenians; and Athens, in her glory, was supported by the strong hearts and willing minds of her people, who, in a noble spirit of emulation, sought to make Greece celebrated and renowned—to make her terrible in war and proud in peace.

"Let us then, in the proper spirit, emulate and follow the example of the Greek—let our watchword be **ONWARD!** till we can say, at least, that Macoupin County shall worthily be designated the richest field in agriculture and letters in the 'garden spot of the American continent.'"

Popular self-government may be inefficient and extravagant—but, it's popular self-government.

German archaeologists, working with permission of the Greek government, have discovered the sought for altar of Zeus on the mountain of Aegina, famous in Greek mythology. The altar is from the fifth century B. C. The antique walls prove to be a temple of the Greek-Pergamon period, second century B. C. A great monumental stairway has been found, dividing the building into two unequal parts. Up this stairway processions to worship Zeus must have mounted. The columns and decorations were of a local stone, less durable than the materials of walls and stair, and only one capital of a column has survived the centuries.

The view from the terrace where the Greek worshippers stood is pronounced marvelously beautiful, looking across isles of the sea to Athens and the plain of Attica.

When I went to Boston Tech there was a young lady there studying architecture. She was cute and red-haired, and the Sophs went for her strong. But do they fall for her sex-appeal now that she's taking away their clients and landing as a successful competitor for libraries and court houses? I wonder. She isn't snatching off men's hats, exactly, I hope, but she's fighting them just the same. —Gelett Burgess.